WHAT IS CLAIMED IS:

1. A filter apparatus for reducing noise generated by a circuit comprising:

a common mode filter having an input for sensing a common mode signal between a power source and the circuit, an output, and active circuitry for producing an offset signal on the output; and

a differential mode filter having an input, an output, and active circuitry for sensing a differential mode signal and producing variations in resistance between the input and output to offset the differential signal.

2. The apparatus of claim 1 wherein:

the input of the common mode filter is connected to rails of the power source at a point between the power source and the differential circuit.

3. The apparatus of claim 1 wherein:

the differential mode filter is connected between the circuit and the power source and the input of the differential mode filter is connected to the circuit.

4. The apparatus of claim 3 wherein:

the input of the common-mode filter is connected between the power source and the input of the differential mode filter.

5. The apparatus of claim 4 further comprising:

bias circuitry having one input connected to the input of the differential mode filter and a second input connected between the input of the common mode filter and the circuit.

6. A filter apparatus for reducing noise generated by a circuit comprising:

a common mode filter having an input for sensing a common mode signal between a power source and the circuit, an output, and active circuitry for producing an offset signal on the output; and

a controlled impedance return path having a first end connected between the power source and the input of the common mode filter and a second end connected to the output of the common mode filter.

7. The apparatus of claim 1 or 6 wherein:

the input of the common mode filter comprises a transformer, the transformer having a tertiary winding which produces an output voltage based upon common mode current at the input of the common mode filter.

8. The apparatus of claim 7 wherein:

the transformer comprises a common mode transformer having a first primary winding connected in series with a positive supply rail and a second primary winding connected in series with a negative supply rail.

9. The apparatus of claim 1 or 6 further comprising:

a first amplifier having an input connected to sense the common mode current at the input of the common mode filter and an output for driving the output of the common mode filter.

10. The apparatus of claim 9 further comprising:

a capacitance connected in series between the output of the amplifier and the output of the common mode filter.

11. The apparatus of claim 1 or 6 wherein:

the common mode filter comprises a closed loop feedback system in which the filter output tends to drive the common mode input toward zero.

12. The apparatus of claim 1 wherein:

the common mode filter further comprises a controlled impedance return path having a first end connected between the power source and the input of the common mode filter and a second end connected to the output of the common mode filter.

13. The apparatus of claim 6 or 12 wherein:

the controlled impedance further comprises a series connected capacitor and resistor.

14. The apparatus of claim 1 wherein:

the differential mode filter further comprises a current sense circuit for generating a signal proportional to the differential-mode current flowing through the output of the differential mode filter and a controlled resistance connected in series with the input and the output of the differential mode filter.

15. The apparatus of claim 14 wherein:

the differential mode filter further comprises a second amplifier circuit having an input connected to the current sense circuit and an output for controlling the controlled resistance.

16. The apparatus of claim 15 wherein:

the controlled resistance comprises a MOSFET.

17. The apparatus of claim 1 wherein:

the differential mode filter comprises a closed loop feedback system in which the filter changes series resistance in a way that tends to drive the differential mode current toward zero.

18. The apparatus of claim 1 wherein:

the circuit comprises a switching power converter having a positive and a negative power input terminal;

the power source further comprises a positive and a negative lines for supply power to the circuit;

the input of the common mode filter further comprises a first input connected between the positive supply line and the positive input terminal and a second input connected between the negative supply line and the negative input terminal;

the output of the differential mode filter is connected to the first input and the input of the differential mode filter is connected to the positive input terminal; and further comprising:

bias circuitry connected to positive and negative terminals for powering the filters;

the bias circuitry providing a return path to the positive and negative terminals for the offset signal.

19. The apparatus of claim 1 or 6 wherein:

the offset signal is fed to a shield of the circuit.

20. The apparatus of claim 1 or 6 wherein:

the offset signal has a magnitude substantially equal to the magnitude of the common mode signal

21. The apparatus of claim 1 or 6 wherein:

the offset signal has a polarity opposite to the polarity of the common mode signal.

22. A method for reducing noise generated by a circuit comprising:

providing a common mode filter having an input for sensing a common mode signal between a power source and the circuit, an output, and active circuitry for producing an offset signal on the output; and

providing a differential mode filter having an input, an output, and active circuitry for sensing a differential mode signal and producing variations in resistance between the input and output to offset the differential signal.

23. The method of claim 22 further comprising:

connecting the input of the common mode filter to rails of the power source at a point between the power source and the differential circuit.

24. The method of claim 22 further comprising:

connecting the differential mode filter between the circuit and the power source with the input of the differential mode filter connected to the circuit.

25. The method of claim 24 further comprising:

connecting the input of the common mode filter between the power source and the output of the differential mode filter.

26. The method of claim 25 further comprising:

connecting a first input of a bias circuitry to the input of the differential mode filter and connecting a second input of the bias circuitry between the input of the common mode filter and the circuit.

27. A method of reducing noise generated by a circuit comprising:

providing a common mode filter having an input for sensing a common mode signal between a power source and the circuit, an output, and active circuitry for producing an offset signal on the output; and

providing a controlled impedance return path having a first end for connection between the power source and the input of the common mode filter and a second end for connection to the output of the common mode filter.

28. The method of claim 22 or 27 further comprising:

providing a transformer at the input of the common mode filter, the transformer having a tertiary winding for producing an output voltage based upon common mode current at the input of the common mode filter.

29. The method of claim 28 further comprising:

providing the transformer with a first primary winding for connection in series with a positive supply rail and a second primary winding for connection in series with a negative supply rail.

30. The method of claim 22 or 27 further comprising:

providing a first amplifier having an input to sense the common mode current at the input of the common mode filter and an output for driving the output of the common mode filter.

31. The method of claim 30 further comprising:

providing a capacitance in series between the output of the amplifier and the output of the common mode filter.

32. The method of claim 22 or 27 further comprising:

providing a closed loop feedback system in the common mode filter wherein the filter output tends to drive the common mode input toward zero.

33. The method of claim 22 further comprising:

providing a controlled impedance return path for the common mode filter;

providing a first end for connection between the power source and the input of the common mode filter; and

providing a second end for connection to the output of the common mode filter.

34. The method of claim 27 or 33 further comprising:

providing a series connected capacitor and resistor for the controlled impedance.

35. The method of claim 22 further comprising:

providing a current sense circuit for the differential mode filter for generating a signal proportional to the differential-mode current flowing through the input of the differential mode filter; and

providing a controlled resistance connected in series with the input and the output of the differential mode filter.

36. The method of claim 35 further comprising:

providing a second amplifier circuit for the differential mode filter having an input for receiving the signal and an output for controlling the controlled resistance.

37. The method of claim 36 further comprising:

providing a MOSFET for the controlled resistance.

38. The method of claim 22 further comprising:

providing a closed loop feedback system in the differential mode filter wherein the filter changes series resistance in a way that tends to drive the differential mode current toward zero.

39. The method of claim 22 wherein:

the circuit comprises a switching power converter having a positive and a negative power input terminal;

the power source further comprises a positive and a negative lines for supply power to the circuit; and further comprising

connecting a first input of the common mode filter between the positive supply line and the positive input terminal;

connecting a second input of the common mode filter between the negative supply line and the negative input terminal;

connecting the output of the differential mode filter to the first input;

connecting the input of the differential mode filter to the positive input terminal;

providing bias circuitry connected to the positive and negative terminals for powering the filters; and

providing a return path for the offset signal to the positive and negative terminals.

40. The method of claim 22 or 27 further comprising:

feeding the offset signal to a shield of the circuit.

41. A method of reducing noise generated by a circuit comprising:

sensing a common mode signal between a power source and the circuit;

producing an offset signal for driving a common node;

sensing a differential mode signal; and

producing variations in resistance between an input and the output to offset the differential signal.

42. A method of reducing noise generated by a circuit comprising:

sensing a common mode signal between a power source and the circuit;

producing an offset signal for driving a common node; and

providing a controlled impedance return path having a first end connected between the power source and an input and a second end connected to the common node.